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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/891,997

06/26/2001

Tsukasa Yagi

15162/03790

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24367

7590

09/21/2006

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EXAMINER

NGUYEN, HOAN C

ART UNIT

PAPER NUMBER

2871

DATE MAILED: 09/21/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 09/891,997	Applicant(s) YAGI ET AL.	
	Examiner HOAN C. NGUYEN	Art Unit 2871	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 14 July 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-26 and 29-48 is/are pending in the application.
- 4a) Of the above claim(s) 6-26 and 30-43 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5, 29 and 44-48 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

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### **DETAILED ACTION**

Claims 27-28 are cancelled. Nonelected claims 6-26 and 30-43 are withdrawn.

New references, **Yoneda et al.** (US6954195B2), **Yamakawa et al.** (US6697039B1) and **Kimura** (US5602559A), are added to illustrate the resetting process, in which the pixel corresponding to the selected first scanning first electrode is not display.

The primary reference Yamagishi (US4920409A) is still proper for rejection since (1) "scanning" electrode and "signal" electrode are only labels, which can be swapped or interchanged; (2) Yamagishi based on prior of figure 1 to modify to form a matrix type color liquid crystal display; however, for instant application, figure 1 of Yamagishi can be modified to form liquid crystal display, in which writing time of frame is short and a blackout is reduced as much as possible and screen is easy to view.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1-5, 29 and 44-48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamagishi (US4920409A) in view of **Yoneda et al.** (US6954195B2).

In regard to claims 1 and 47-48, Yamagishi discloses (Fig. 1) all features in claims 1-3 and 47 except for inversely arrangement of the scanning and signal lines. Here, scanning electrodes (C1-C3) are interchanged with signal electrodes (R1-R7) in reference of Yamagishi for vertical and horizontal choices. In another words, scanning electrodes C1-C3 can be renamed to be signal electrodes and signal electrodes R1-R7 can be renamed to be scanning electrodes. The renamed electrodes will not change any property of display. [as discussed in Office Action mailed on 9/23/04, 4/20/2004 and 5/2/2005].

Therefore, a liquid crystal display apparatus comprising:

- a liquid crystal layer comprising liquid crystal and having a plurality of pixels, where scanning electrodes cross the signal electrodes, arranged in a matrix composed of rows and columns;
- a number of first scanning electrodes Y1-Y7 according to electrode R1-R7 aligned in a first direction at a first pitch (between  $Y_i$  and  $Y_j$ , where  $i$  and  $j = 1-7$ ), the number of the first scanning electrodes corresponding to a number of rows and each of the first scanning electrodes extending in a second direction substantially orthogonal to the first direction (y-direction);
- a plurality of signal electrodes X1-X3 according to electrode C1-C3 facing the first scanning electrodes with the liquid crystal layer sandwiched between the signal electrodes and the first scanning electrodes, the signal electrodes being aligned in the second direction (X-direction) at a second pitch (between  $X_m$  and

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$X_n$ , where  $n$  and  $m = 1-3$ ) wider than the first pitch and each of the signal electrodes extending in the first direction.

- a scanning electrode driver connected to the first scanning electrodes;
- a signal electrode driver connected to the signal electrode;

Claim 2:

- pixels are formed at intersections of the first scanning electrodes and the signal electrodes; and each of the pixels is a rectangle of which shorter sides are parallel to the first direction and of which longer sides are parallel to the second direction.

Claim 3:

- a width of each of the first scanning electrodes defines a length of the shorter sides of each of the pixels; and a width of each of the signal electrodes defines a length of the longer sides of each of the pixels.

Claim 4-5:

- the first pitch is  $1/n$  of the second pitch, wherein  $n$  is 2.

Claim 44:

- all of pixels can display a same color for reducing cost due to less expensive for one color display than for three color display.

However, Yamagishi fails to disclose a liquid crystal display apparatus with (a) the liquid crystal having a memory effect, exhibiting a cholesteric phase and comprising a nematic liquid crystal compound and a chiral agent; (b) a controller for controlling the

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scanning electrode driver and the scanning electrode driver such that the scanning electrode driver selects the first scanning electrodes in a specified order by outputting a selective signal to each of the first scanning electrodes and the signal electrode driver outputs signals to the plurality of signal electrodes in accordance with image data to display the pixels on the row of the matrix corresponding to the selected scanning electrode wherein while each of the first scanning electrodes is being selected, the pixel corresponding to the selected first scanning first electrode are not display (claims 1 and 45-48).

**Yoneda et al.** teach a liquid crystal display apparatus with (a) the liquid crystal having a memory effect, exhibiting a cholesteric phase and comprising a nematic liquid crystal compound and a chiral agent; (b) a controller for controlling the scanning electrode driver and the scanning electrode driver such that the scanning electrode driver selects the first scanning electrodes in a specified order by outputting a selective signal to each of the first scanning electrodes and the signal electrode driver outputs signals to the plurality of signal electrodes in accordance with image data to display the pixels on the row of the matrix corresponding to the selected scanning electrode wherein while each of the first scanning electrodes is being selected, the pixel corresponding to the selected first scanning first electrode are not display (claims 1 and 45-48).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to rearrange the scanning and signal lines for designed choice of

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vertical and horizontal images, since it has been held that rearranging parts of an invention involves only routine skill in the art. In re Japikse, 86 USPQ 70; wherein the liquid crystal having a memory effect, exhibiting a cholesteric phase and comprising a nematic liquid crystal compound and a chiral agent for consuming less power (col. 3 lines 17-20); a controller for controlling the scanning electrode driver and the scanning electrode driver such that the scanning electrode driver selects the first scanning electrodes in a specified order by outputting a selective signal to each of the first scanning electrodes and the signal electrode driver outputs signals to the plurality of signal electrodes in accordance with image data to display the pixels on the row of the matrix corresponding to the selected scanning electrode wherein while each of the first scanning electrodes is being selected, the pixel corresponding to the selected first scanning first electrode are not display (claims 1 and 45-48) for high speed writing, achieving easy-to-see screen (col. 2 lines 1-11) as taught by Yoneda et al.

2. Claims 1-5, 29 and 44-48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamagishi (US4920409A) in view of **Yamakawa et al.** (US6697039B1).

In regard to claims 1 and 47-48, Yamagishi discloses (Fig. 1) all features in claims 1-3 and 47 except for inversely arrangement of the scanning and signal lines. **Here, scanning electrodes (C1-C3) are interchanged with signal electrodes (R1-R7) in reference of Yamagishi for vertical and horizontal choices. In another words, scanning electrodes C1-C3 can be renamed to be signal electrodes and**

**signal electrodes R1-R7 can be renamed to be scanning electrodes. The renamed electrodes will not change any property of display. [as discussed in Office Action mailed on 9/23/04, 4/20/2004 and 5/2/2005].**

Therefore, a liquid crystal display apparatus comprising:

- a liquid crystal layer comprising liquid crystal and having a plurality of pixels, where scanning electrodes cross the signal electrodes, arranged in a matrix composed of rows and columns;
- a number of first scanning electrodes Y1-Y7 according to electrode R1-R7 aligned in a first direction at a first pitch (between  $Y_i$  and  $Y_j$ , where  $i$  and  $j = 1-7$ ), the number of the first scanning electrodes corresponding to a number of rows and each of the first scanning electrodes extending in a second direction substantially orthogonal to the first direction (y-direction);
- a plurality of signal electrodes X1-X3 according to electrode C1-C3 facing the first scanning electrodes with the liquid crystal layer sandwiched between the signal electrodes and the first scanning electrodes, the signal electrodes being aligned in the second direction (X-direction) at a second pitch (between  $X_m$  and  $X_n$ , where  $n$  and  $m = 1-3$ ) wider than the first pitch and each of the signal electrodes extending in the first direction.
- a scanning electrode driver connected to the first scanning electrodes;
- a signal electrode driver connected to the signal electrode;

Claim 2:



- pixels are formed at intersections of the first scanning electrodes and the signal electrodes; and each of the pixels is a rectangle of which shorter sides are parallel to the first direction and of which longer sides are parallel to the second direction.

Claim 3:

- a width of each of the first scanning electrodes defines a length of the shorter sides of each of the pixels; and a width of each of the signal electrodes defines a length of the longer sides of each of the pixels.

Claim 4-5:

- the first pitch is  $1/n$  of the second pitch, wherein  $n$  is 2.

Claim 44:

- all of pixels can display a same color for reducing cost due to less expensive for one color display than for three color display.

However, Yamagishi fails to disclose a liquid crystal display apparatus with (a) the liquid crystal having a memory effect, exhibiting a cholesteric phase and comprising a nematic liquid crystal compound and a chiral agent; (b) a controller for controlling the scanning electrode driver and the scanning electrode driver such that the scanning electrode driver selects the first scanning electrodes in a specified order by outputting a selective signal to each of the first scanning electrodes and the signal electrode driver outputs signals to the plurality of signal electrodes in accordance with image data to display the pixels on the row of the matrix corresponding to the selected scanning

electrode wherein while each of the first scanning electrodes is being selected, the pixel corresponding to the selected first scanning first electrode are not display (claims 1 and 45-48).

**Yamakawa et al.** teach a liquid crystal display apparatus with (a) the liquid crystal having a memory effect, exhibiting a cholesteric phase and comprising a nematic liquid crystal compound and a chiral agent; (b) a controller for controlling the scanning electrode driver and the scanning electrode driver such that the scanning electrode driver selects the first scanning electrodes in a specified order by outputting a selective signal to each of the first scanning electrodes and the signal electrode driver outputs signals to the plurality of signal electrodes in accordance with image data to display the pixels on the row of the matrix corresponding to the selected scanning electrode wherein while each of the first scanning electrodes is being selected, the pixel corresponding to the selected first scanning first electrode are not display (claims 1 and 45-48).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to rearrange the scanning and signal lines for designed choice of vertical and horizontal images, since it has been held that rearranging parts of an invention involves only routine skill in the art. In re Japikse, 86 USPQ 70; wherein the liquid crystal having a memory effect, exhibiting a cholesteric phase and comprising a nematic liquid crystal compound and a chiral agent for consuming less power supply and obtaining large screen (col. 2 lines 44-59); a controller for controlling the scanning

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electrode driver and the scanning electrode driver such that the scanning electrode driver selects the first scanning electrodes in a specified order by outputting a selective signal to each of the first scanning electrodes and the signal electrode driver outputs signals to the plurality of signal electrodes in accordance with image data to display the pixels on the row of the matrix corresponding to the selected scanning electrode wherein while each of the first scanning electrodes is being selected, the pixel corresponding to the selected first scanning first electrode are not display (resetting state) for reducing time of rewriting where resetting is sequentially performed for each scanning electrode as taught by Yamakawa et al.

3. Claims 1-5, 29 and 44-48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamagishi (US4920409A) in view of Masazumi (US6414669B1) and Kimura (US5602559A).

In regard to claims 1 and 47-48, Yamagishi discloses (Fig. 1) all features in claims 1-3 and 47 except for inversely arrangement of the scanning and signal lines. **Here, scanning electrodes (C1-C3) are interchanged with signal electrodes (R1-R7) in reference of Yamagishi for vertical and horizontal choices. In another words, scanning electrodes C1-C3 can be renamed to be signal electrodes and signal electrodes R1-R7 can be renamed to be scanning electrodes. The renamed electrodes will not change any property of display [as discussed in Office Action mailed on 9/23/04, 4/20/2004 and 5/2/2005].**

Therefore, a liquid crystal display apparatus comprising:

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- a liquid crystal layer comprising liquid crystal and having a plurality of pixels, where scanning electrodes cross the signal electrodes, arranged in a matrix composed of rows and columns;
- a number of first scanning electrodes Y1-Y7 according to electrode R1-R7 aligned in a first direction at a first pitch (between  $Y_i$  and  $Y_j$ , where  $i$  and  $j = 1-7$ ), the number of the first scanning electrodes corresponding to a number of rows and each of the first scanning electrodes extending in a second direction substantially orthogonal to the first direction (y-direction);
- a plurality of signal electrodes X1-X3 according to electrode C1-C3 facing the first scanning electrodes with the liquid crystal layer sandwiched between the signal electrodes and the first scanning electrodes, the signal electrodes being aligned in the second direction (X-direction) at a second pitch (between  $X_m$  and  $X_n$ , where  $n$  and  $m = 1-3$ ) wider than the first pitch and each of the signal electrodes extending in the first direction.
- a scanning electrode driver connected to the first scanning electrodes;
- a signal electrode driver connected to the signal electrode;

Claim 2:

- pixels are formed at intersections of the first scanning electrodes and the signal electrodes; and each of the pixels is a rectangle of which shorter sides are parallel to the first direction and of which longer sides are parallel to the second direction.

Claim 3:

- a width of each of the first scanning electrodes defines a length of the shorter sides of each of the pixels; and a width of each of the signal electrodes defines a length of the longer sides of each of the pixels.

Claim 4-5:

- the first pitch is  $1/n$  of the second pitch, wherein  $n$  is 2.

Claim 44:

- all of pixels can display a same color for reducing cost due to less expensive for one color display than for three color display.

However, Yamagishi fails to disclose a liquid crystal display apparatus with (a) the liquid crystal having a memory effect, exhibiting a cholesteric phase and comprising a nematic liquid crystal compound and a chiral agent; (b) a controller for controlling the scanning electrode driver and the signal electrode driver such that the scanning electrode driver selects the first scanning electrodes in a specified order by outputting a selective signal to each of the first scanning electrodes and the signal electrode driver outputs signals to the plurality of signal electrodes in accordance with image data to display the pixels on the row of the matrix corresponding to the selected scanning electrode wherein while each of the first scanning electrodes is being selected, the pixel corresponding to the selected first scanning first electrode are not display (claims 1 and 45-48).

Masazumi teaches a liquid crystal display apparatus comprising the liquid crystal having a memory effect wherein the liquid crystal exhibits a cholesteric phase

and comprises a nematic liquid crystal compound and a chiral agent (claim 29) retaining the display states of the liquid crystals if the deselect signal is held below the prescribed threshold voltage.

**Kimura** teaches a liquid crystal display apparatus with a controller for controlling the scanning electrode driver and the scanning electrode driver such that the scanning electrode driver selects the first scanning electrodes in a specified order by outputting a selective signal to each of the first scanning electrodes and the signal electrode driver outputs signals to the plurality of signal electrodes in accordance with image data to display the pixels on the row of the matrix corresponding to the selected scanning electrode wherein while each of the first scanning electrodes is being selected, the pixel corresponding to the selected first scanning first electrode are not display (claims 1 and 45-48).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to rearrange the scanning and signal lines for designed choice of vertical and horizontal images, since it has been held that rearranging parts of an invention involves only routine skill in the art. In re Japikse, 86 USPQ 70; wherein (a) the liquid crystal having a memory effect, exhibiting a cholesteric phase and comprising a nematic liquid crystal compound and a chiral agent for consuming less power supply and obtaining large screen (col. 2 lines 33-34) as taught by Masazumi; (b) a controller for controlling the scanning electrode driver and the scanning electrode driver such that the scanning electrode driver selects the first scanning electrodes in a specified order

by outputting a selective signal to each of the first scanning electrodes and the signal electrode driver outputs signals to the plurality of signal electrodes in accordance with image data to display the pixels on the row of the matrix corresponding to the selected scanning electrode wherein while each of the first scanning electrodes is being selected, the pixel corresponding to the selected first scanning first electrode are not display (resetting state) for achieving multi-graduation display (col. 3 lines 44-67) as taught by Kimura.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HOAN C. NGUYEN whose telephone number is (571) 272-2296. The examiner can normally be reached on MONDAY-THURSDAY:8:00AM-4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached on (571) 272-1787. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

HOAN C. NGUYEN  
Examiner  
Art Unit 2871

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PRIMARY EXAMINER